

2018 QUARTER 3

# Southwest VA Workforce Report



SOUTHWEST VIRGINIA  
WORKFORCE  
DEVELOPMENT BOARD



OUTREACH & INTERNATIONAL AFFAIRS  
VIRGINIA TECH.  
OFFICE OF ECONOMIC DEVELOPMENT



# Introduction

## 2018 Quarterly Workforce Report 3

*Welcome to the 2018 quarter three workforce report*, produced by the Virginia Tech Office of Economic Development for the Southwest Virginia Workforce Development Board. This document focuses on gender in the workplace at the national and regional level. National trends provide context for gender-based wage differences and the barriers women face throughout their time in the workforce. Regional trends illustrate how these differences affect the seven counties and city that comprise the workforce area.

This report begins by outlining national trends related to gender-based workforce inequalities and details information on the role of gender in labor force participation, highlighting disparities between education attainment and career opportunities for men and women. The report continues this focus on page four, displaying data on female representation at all levels of the corporate ladder as well as information related to female representation and weekly wages for national sectors and female employment in science, technology, engineering, and mathematics (STEM) fields.

This quarter's data snapshot then focuses on regional trends, including information and data related to demographic changes, female labor force participation, and female representation in regional industry sectors. Page six offers an overview of occupations for both men and women. Additionally, a map illustrating female representation in the regional labor force and the gender wage gap is included on page six. The next two pages (seven and eight) include information and data related to female employment in GO Virginia target industries within the region as well as other industries important to the area economy.

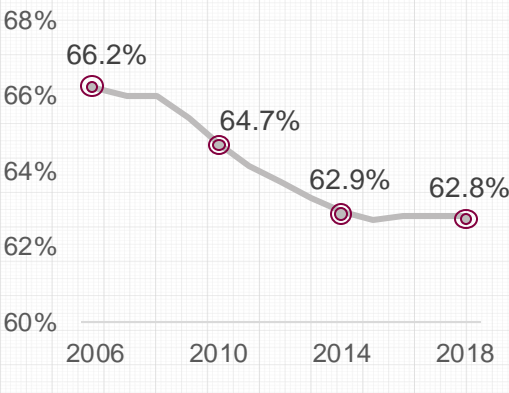
Page nine includes brief summaries of interviews with women working in some of the region's target industries. These interview summaries offer personal experiences and perspectives from females in industries or occupations where women may be underrepresented. The report concludes with a brief summary.



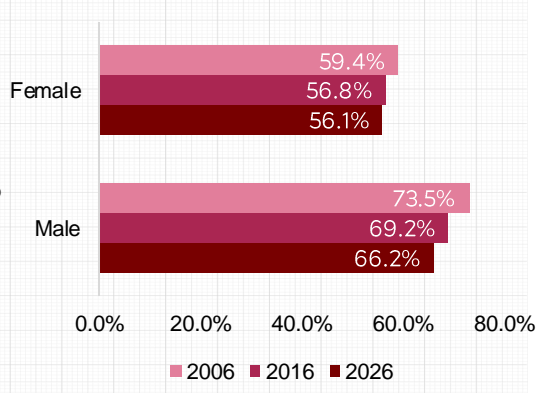
National Trends

Labor force participation

Participation Rate, March 2006-18



Participation Rate by Gender, 2006-26



National Labor force participation fell by 3.4% from 2006 to 2018. During this same period, men exited the labor force at a higher rate than women. For instance, female labor force participation has declined marginally in the past 10 years- falling by only 2.6%- while male labor force participation fell at a rate of 4.3%.

Marital Status and Labor force Participation

Labor force participation also varies by marital status for women and men. For instance, divorced women participate in the labor force at a higher rate than their married counterparts. By contrast, married men were more likely to participate in the labor force than divorced men. Moreover, unmarried mothers are more likely to participate in the labor force than married mothers. In 2015, working wives contributed an

Labor Force Participation by Marital Status, 2016

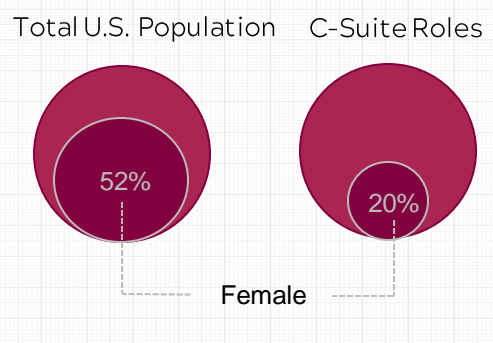
Married		Divorced	
Women	Men	Women	Men
57.9%	73.31%	62.5%	66%
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average of 37% to total family incomes. This figure has increased by 10% from 1970, possibly due to the proportion of wives earning more than their husbands. In 1987, for instance, 18 percent of working wives earned more than their working spouses; in 2015, 29 percent of wives earned more than their husbands. This trend aligns with the national decrease in wage gap during the past two decades.

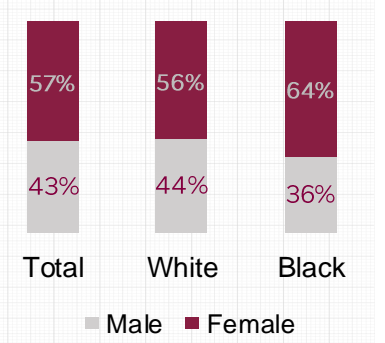
Education and Careers

Women graduate more and are hired less. Women account for 57% of recent college graduates yet more men are hired to entry level positions. At every subsequent step of the career pipeline, female representation continues to decline. Moreover, women of color see far less representation at senior levels. Overall, one in five C-suite leaders are women, and fewer than one in thirty is a woman of color.

Female population vs. C-Suite Roles\*



Bachelor's Degree Awarded



\*C-Suite Roles are those at the top of the corporate ladder, including CTO, COO, CFO, CEO  
 Sources: Bureau of Labor Statistics (BLS)  
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# National Trends

## Representation in the corporate pipeline by gender and race

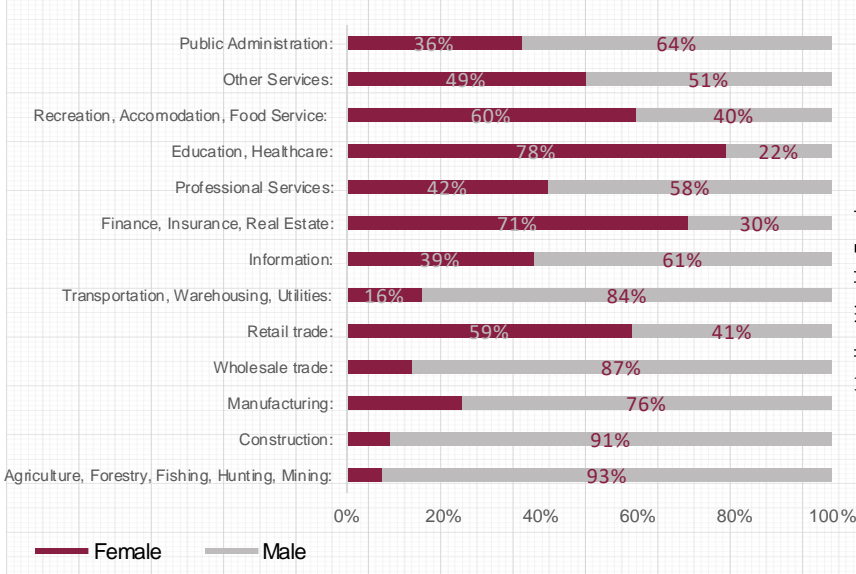
**Demographics of Corporate Positions, 2017**

	Entry Level	Manager	Director	VP	SVP	C-Suite
White Men	36%	47%	54%	61%	70%	67%
White Women	31%	26%	26%	23%	18%	18%
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Women of Color	17%	11%	8%	6%	4%	3%

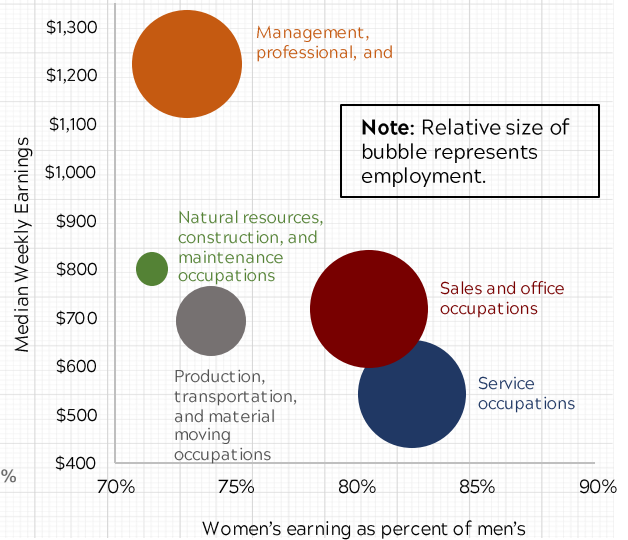
Women fall behind early and continue to lose ground with every step. Women are underrepresented at every level of the corporate pipeline, with female representation tapering at every level of the corporate ladder. Moreover, women of color see a fraction of the representation observed in their white counterparts. At every step of the corporate ladder, women of color see the least representation of all reported groups.

## Women's Earnings and Occupations

**Female Representation by Industry, 2016**



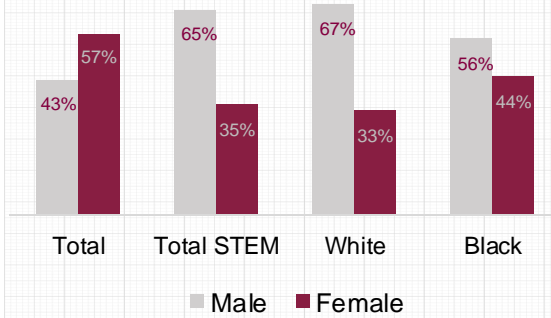
**Women's Employment and Median Weekly Wage by Industry, 2016**



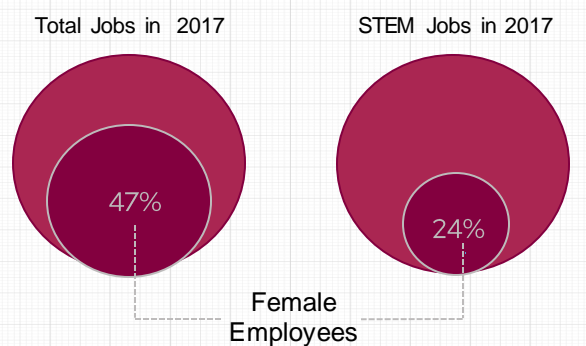
## Education and Employment in the STEM Fields

While women are more likely to earn bachelor's degrees, they are less likely to pursue degrees in STEM fields. Additionally, African American women are more likely to pursue STEM education than their white counterparts.

**Bachelor's degree in STEM Fields, 2017**



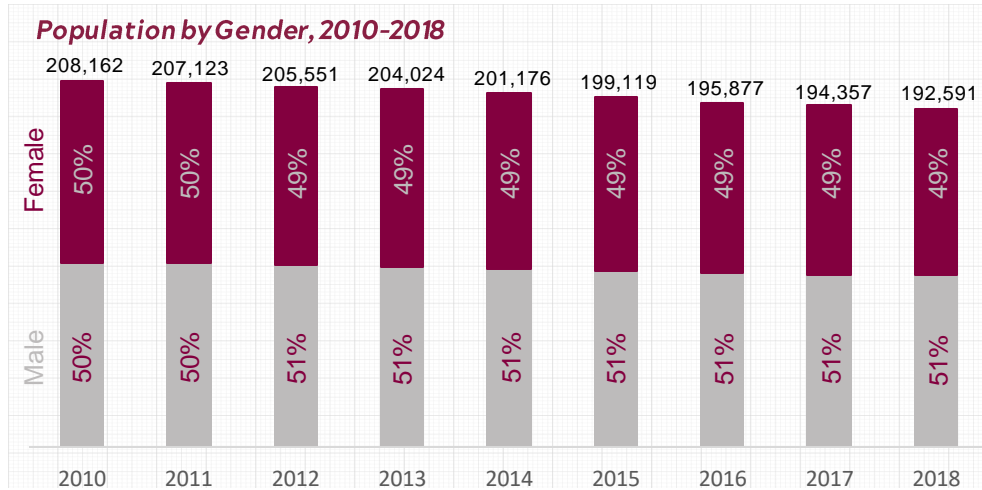
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# Regional Overview

## Demographic Trends

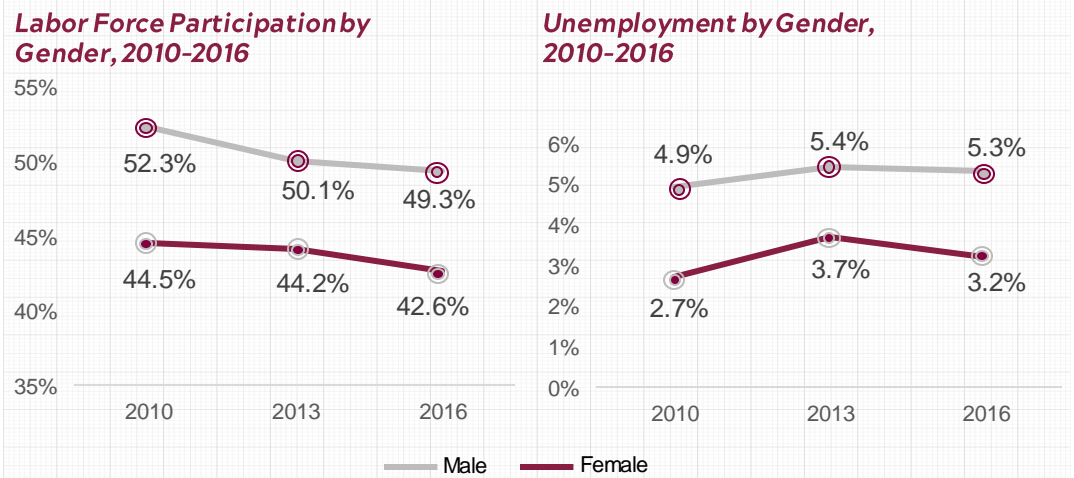


The regional population fell by approximately 8 percent (a loss of 15,571 People) from 2010 to 2018. These regional population losses disproportionately affected the female population, which was reduced by 8,373 people- 1,175 more people than population losses for men. Currently, the population is marginally skewed with men outnumbering women by 2,896, or approximately 1%.

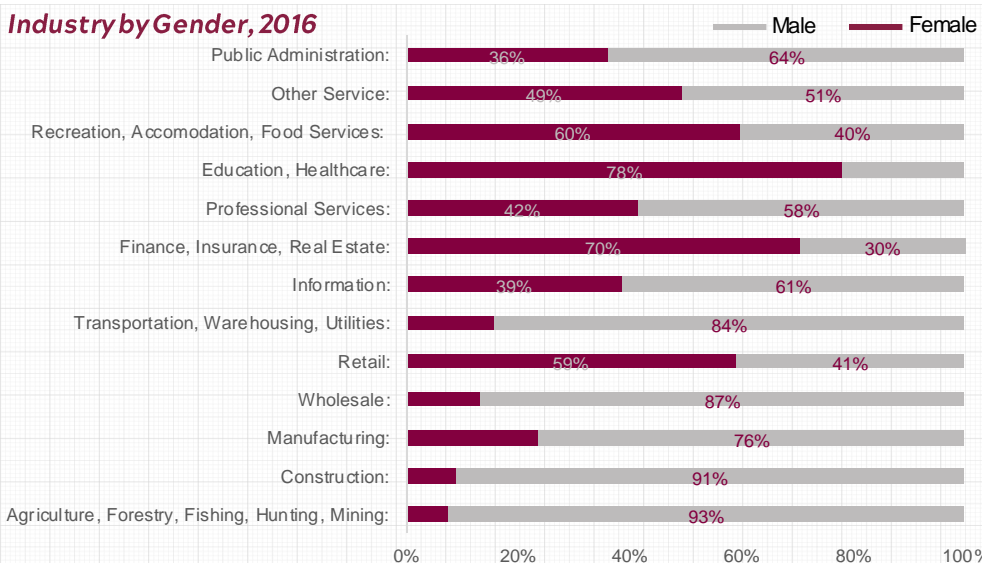
## Women In the Labor Force

Similar to national trends, the regional labor force participation rate is falling for both women and men.

Additionally, while female unemployment is lower than male unemployment, unemployment for both genders has slightly increased over this six year period.



## Women In Industry



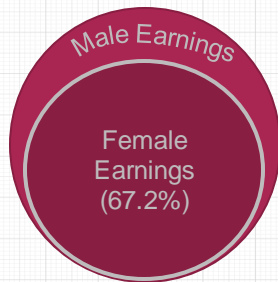
The majority regional sectors are predominately male, with five sectors employing less than 25% women. Only four sectors employ a majority of female employees. These include; recreation, accommodation, and food service; education and healthcare; finance, insurance, and real estate, and retail trade. When compared to national trends, some regional sectors show better gender representation. For instance, finance and real estate is predominately female in the region, and predominately male at the national level.

# Regional Overview

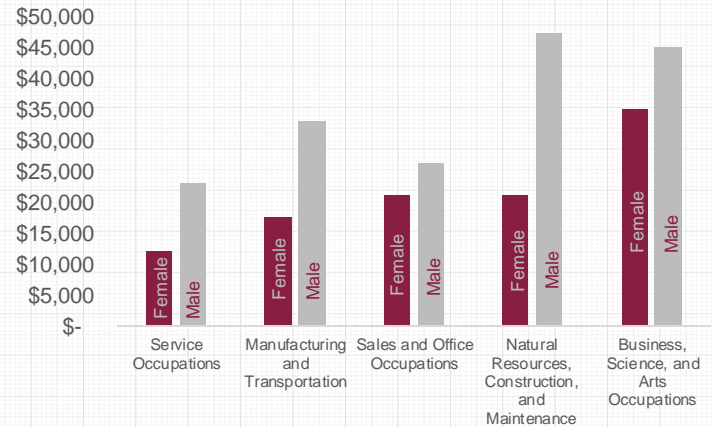
## Women and Wages

Women are Compensated 32.8% less than men in the region, on average. While this is largely on par with national earnings, there are large gaps in compensation for certain occupations in the region. For instance, women make 47% less than men for manufacturing and transportation occupations and 53% less for mining, construction and maintenance occupations.

Women's Earnings as a Percent of Men's, 2016

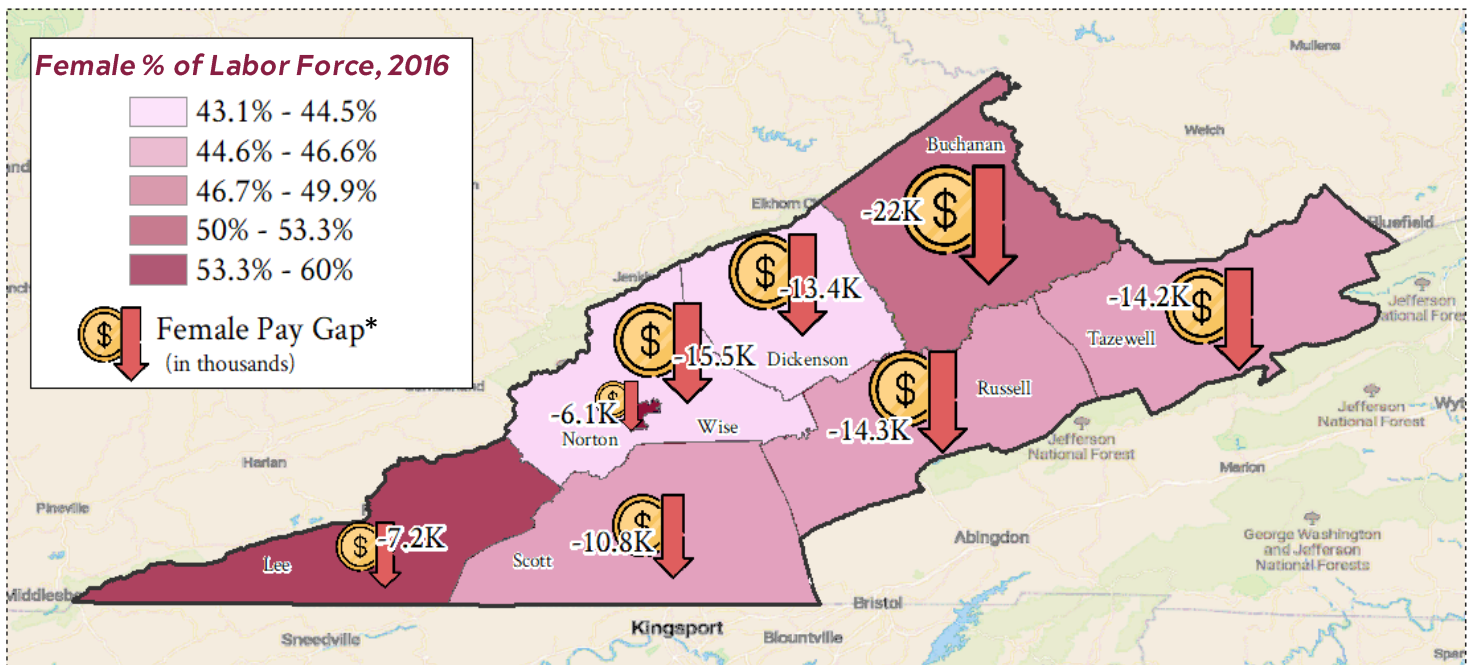


Median Occupational Earnings by Gender, 2016



## Female Representation in the Regional Labor Force

The following map shows female labor force representation and differences in compensation for men and women for the seven counties and one city in the regional workforce area. Localities with lighter shades of maroon have a lower percentage of women in their labor force and localities with darker shades show a higher number of women in the labor force. In 2016, for example, Wise and Dickenson County had the lowest percentage of women in their respective labor forces while Lee County and the City of Norton had the highest. The additional symbols on the map represent gender based wage gaps for each county in 2016. Wage differences vary tremendously throughout the region. For example, in Buchanan County, women are compensated \$22,000 less than their male counterparts, while in the City of Norton, women are compensated only \$6,100 less.



\*Wage gaps were determined by subtracting median male occupational earnings by median female occupational earnings for 2016. The wage gap displayed on this map is the difference between male and female earnings, across all occupations. Sources: U.S. Census Bureau, American Community Survey, Tables S2401, S2403, S2411

## Healthcare

*Approximately 80% of workers in this industry are women.* Many healthcare occupations are high-paying, and predominately female. Higher paying healthcare occupations, however, typically require post-secondary education, such as programs related to nursing and radiology. Nevertheless, this growing sector accounts for several of the highest paying job opportunities for women.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Dental Hygienists	5	66	97%	-3%	\$27.30
Licensed Practical & Vocational Nurses	48	627	92%	1%	\$15.98
Registered Nurses	58	1,093	92%	-1%	\$24.24
Medical Records & Health Information Technicians	6	85	90%	2%	\$15.33
Clinical Laboratory Technologists	7	101	79%	3%	\$23.66
Diagnostic Technicians	9	155	76%	-1%	\$22.67

## Manufacturing

*Approximately 32% of workers in this industry are women.* The vast majority of women in the regional manufacturing industry work in lower paying office and administrative support positions. Manufacturing occupations, especially welders, machinists, and other operations workers, play an important role in providing meaningful, family-wage supporting jobs. Regionally, however, women account for less than 5% of employment for these higher paying, more technical positions.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Bookkeeping & Accounting Clerks	72	647	88%	-3%	\$15.37
Administrative Supervisor	63	614	67%	1%	\$19.68
Tractor-Trailer Drivers	132	1,268	3%	-9%	\$17.66
Construction & Extraction Supervisor	59	562	2%	-3%	\$26.51
Construction Equipment Operating Engineers	69	590	1%	-2%	\$15.88
Electricians	29	250	1%	-1%	\$20.05
Industrial Machinery Mechanics	31	365	1%	-7%	\$19.85

Energy & Minerals 

*Approximately 29% of workers in this industry are women.* Men hold a disproportionately high number of jobs in the energy, mining, and mineral extraction industry. Outside of bookkeeping and office related positions, female representation in this industry is limited to completely nonexistent. While growth is not projected for many of the occupations within this industry, they have a relatively high number of annual openings and pay livable wages.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Bookkeeping & Accounting Clerks	72	647	88%	-3%	\$15.37
Construction/Extraction Supervisor	59	562	2%	-3%	\$26.51
Machinery Mechanics	31	365	1%	-7%	\$19.85
Operating Engineers & Equipment Operators	69	590	1%	-2%	\$16.88
Continuous Mining Machine Operators	31	245	1%	-4%	\$21.09
Mine Cutting & Machine Operators	50	394	0%	-6%	\$18.63

Information Technology 

*Approximately 28% of workers in this industry are women.* Female participation in the IT Sector is increasing. Traditionally, IT occupations have been disproportionately male and many still are. There is, however, a growing female component within this industry. Many occupations with a growing female component in this industry, however, typically pay lower than those with higher percentage of men.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Graphic Designers	8	77	47%	3%	\$16.13
Computer Systems Analysts	17	194	36%	9%	\$28.91
Computer Network Support Specialists	6	62	30%	8%	\$22.36
Computer User Support Specialists	24	256	28%	9%	\$18.87
Information Security Analysts	5	48	26%	13%	\$30.41
Computer Programmers	3	27	24%	22%	\$26.76
Software Developers	23	174	22%	27%	\$31.97



## Manufacturing

Mary is the Manger of Operations at PBE Group, a manufacturer located in Tazewell, Virginia. Mary's role at PBE Group is incredibly varied- she oversees production, human resources, quality assurance, customer relations, and purchasing, as well as many smaller corporate functions. Mary has been with PBE group for 35 years, starting as a production employee. Mary's dedication and diligence was quickly noticed by company management, who continued to promote her within the firm. While Mary does not hold a bachelor's degree, her desire to learn and strong work ethic has placed her in engineering, financial, and other deeply technical roles.



She now serves as second in command at PBE group, reporting to the COO (chief operating officer) of the firm- who is also a woman. Mary stressed that encouraging leadership and teambuilding amongst her subordinates and fellow managers has greatly contributed to her success at PBE, mentioning that, "...a team is only as strong as their weakest link." Unsurprisingly, Mary's management style is hands on- her favorite part of the job is working with her staff. Mary mentioned that her gender did not work against her when she joined the company in 1982. Company leadership at PBE has been traditionally female, and many of their manufacturing and production jobs are actually suited for women in that women are just as capable as men when it comes to technologically advanced positions. The caveat to these occupations, however, is the educational requirement. While Mary does not possess a bachelors degree, she acknowledges its important in future manufacturing jobs, especially in that manufacturing firms such as PBE are only hiring engineers. Encouraging young people to pursue STEM education is important to both Mary and PBE, both of whom participate in outreach programs targeted at middle-school aged children. Additionally, PBE offers factory tours for high-school and college students.

## Information Technology



Tabitha is an IT Service Center Analyst at Northrup Grumman's Lebanon facility. Tabitha's role at the service center is varied, but primarily involves helping fellow Northrup Grumman employees resolve issues with technology. This can include anything from printer setup to network diagnostics and advanced troubleshooting. Prior to her time at Northrup Grumman, Tabitha had no formal IT training- developing her ever-expanding skillset through on-the-job trainings offered by Northrup Grumman. Tabitha enjoys her work, but noted that it takes patience in that troubleshooting for a large company can sometimes be repetitive. Tabitha also noted that the outcome

of her diagnostic and troubleshooting work is not always guaranteed- it is not uncommon for things to go awry during this process. While this is occasionally a source of frustration for Tabitha and her fellow employees, the sense of satisfaction that accompanies the solving of these often complex issues makes it all worth it. Tabitha noted that her gender does not affect her work relationships or performance. She mentioned that in her current position, some might try to take advantage of her, especially pressuring her to break company protocol. She has had no issue standing up for herself, and encouraged women in similar situations to do the same. Finally, Tabitha mentioned that she would like to see more women in IT, encouraging young women not to get discouraged in their job searches and to look outside of tradition female occupations.

## Summary & Conclusion

While women account for almost half of the labor force nationally and regionally, they are under-represented in many higher paying occupations in important industry sectors. By analyzing national and regional trends, this report highlighted a number of inequalities and challenges women confront before and during their employment, namely:

- Women are more likely to be highly educated (57% of Bachelor’s degree) and less likely to work in higher-level positions (e.g., 20% of C-suite roles).
- There are less women studying (35%) and working in (24%) stem related fields.
- Women are compensated up to 40% less than men, depending on the industry.
- Women are underrepresented in high paying industries and those women that do work in high paying industries tend to make the least.

## Regional Trends



### Manufacturing

Approximately 32% of workers in this industry are women.

- Women are predominately employed in low paying, office and administrative support occupations.
- Less than 5% of employment for higher paying, more technical manufacturing jobs is female.



### Healthcare

Approximately 80% of workers in this industry are women.

- Many healthcare occupations are predominately female and high paying.
- Dental hygienists, registered nurses, and clinical laboratory technologists are among the highest paying occupations in the region, and at least 79% female.



### Information Technology

Approximately 28% of workers in this industry are women.

- Female representation in this industry is growing, but is still somewhat low.
- Predominately male occupations are compensated twice that of predominately female occupations in this industry.



### Energy & Minerals

Approximately 29% of workers in this industry are women.

- Similar to manufacturing positions, female employment in this industry is lower paying and limited to office work.
- Less than 2% of employment in higher paying mining and operations occupations is female.

## Regional Trends

There is no “one size fits all” solution to improving employment opportunities for women. While there may be state and national-level policy actions that can help, there are also regional approaches that could be explored by the Workforce Board and other stakeholders:

- Developing industry-wide and company specific mentoring and sponsorship programs for women, including succession planning to encourage future gender equity and leadership development amongst female employees.
- Utilizing social media to highlight female workers and opportunities for women in key industries.
- Increasing the participation of girls in STEM-related training programs and internships in middle and high schools.
- Providing equitable and equal compensation and benefits for women and men.
- Encouraging employers to consider and offer childcare options, flexible scheduling, and creative options for female workers, especially those heading households. Options might include women heading households telecommuting, job sharing, and consulting assignments.



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# New River/ Mount Rogers Workforce Report



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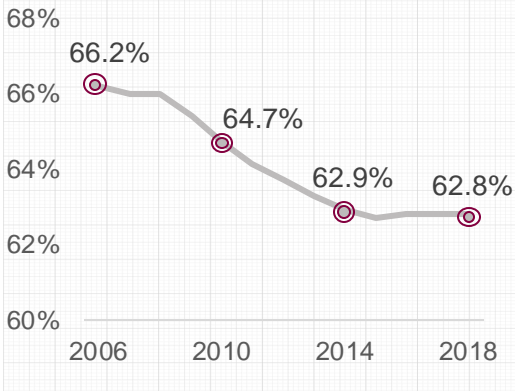
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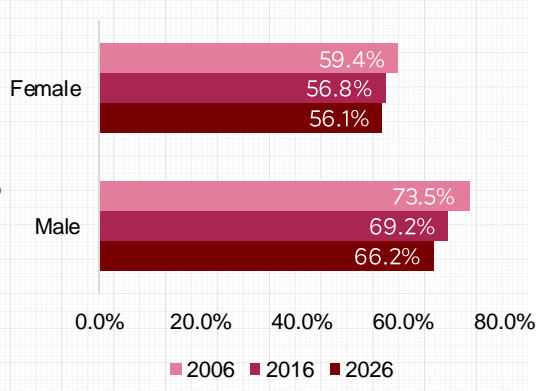
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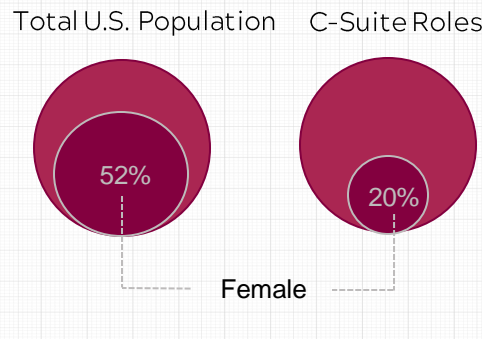
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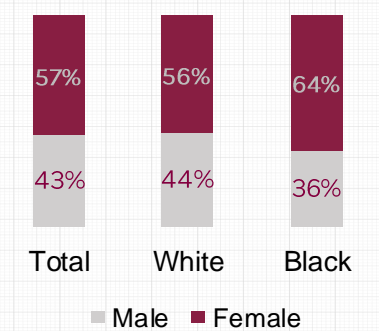
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## Representation in the corporate pipeline by gender and race

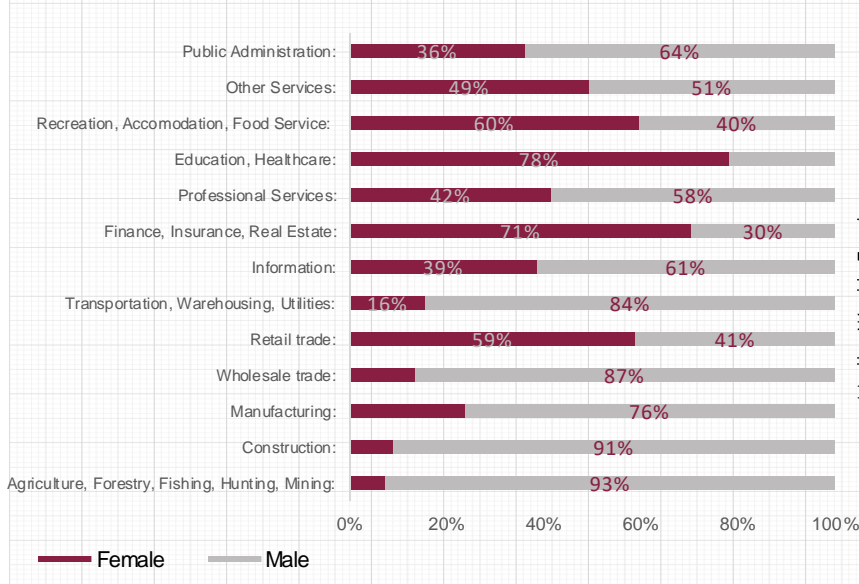
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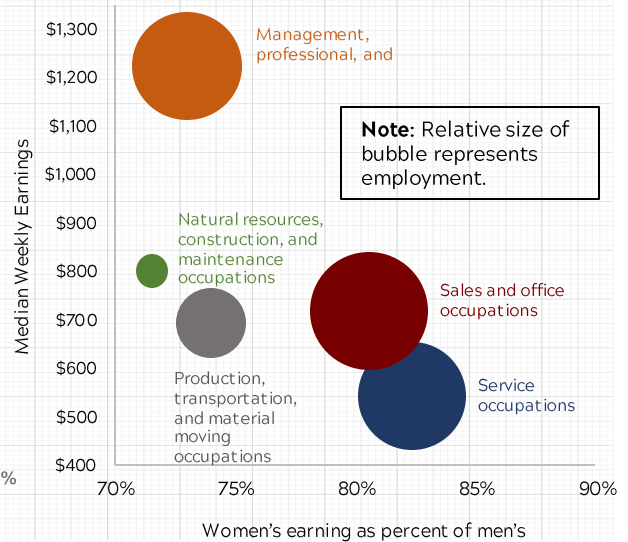
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## Women's Earnings and Occupations

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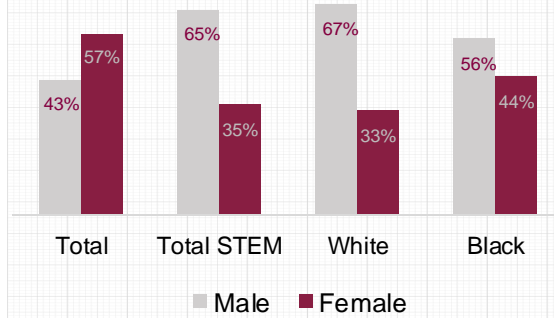
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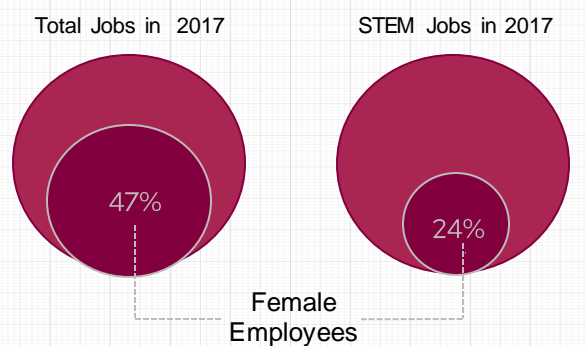
## Education and Employment in the STEM Fields

While women are more likely to earn bachelor's degrees, they are less likely to pursue degrees in STEM fields. Additionally, African American women are more likely to pursue STEM education than their white counterparts.

**Bachelor's degree in STEM Fields, 2017**



**Female Representation in STEM Fields, 2017**

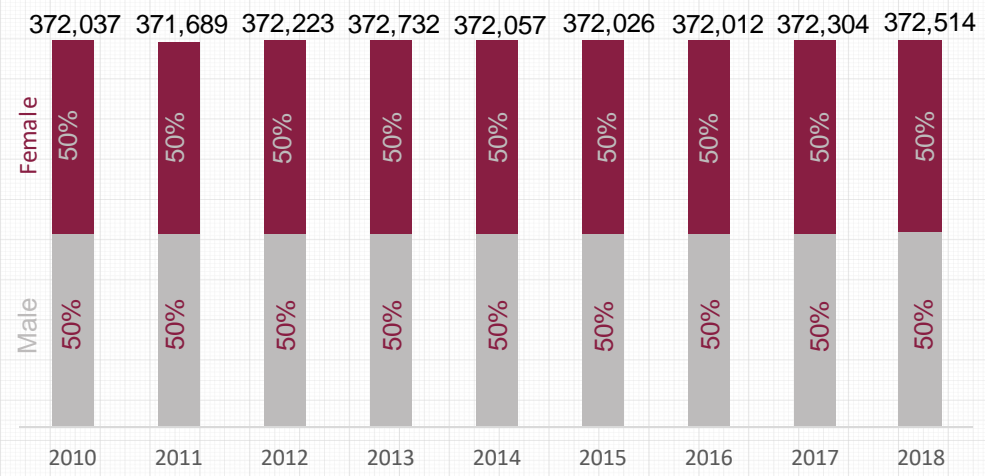


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# Regional Overview

## Demographic Trends

**Population Change, Overall and by Gender, 2010-2018**

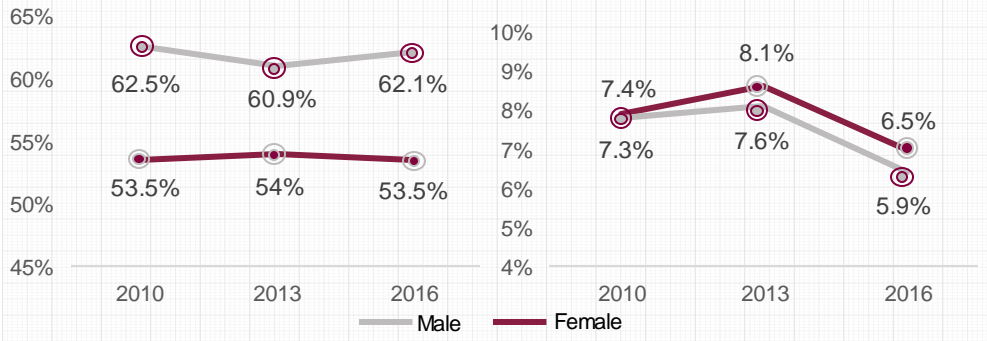


Region II grew by only 0.12% (477 people) from 2010 to 2018. Despite the marginal changes Workforce Development Area 2 has remained evenly represented in terms of gender. During this period, losses in the regional female population mirrored growth in the regional male population, keeping the proportion of men and women evenly distributed from 2010-2018.

## Women In the Labor Force

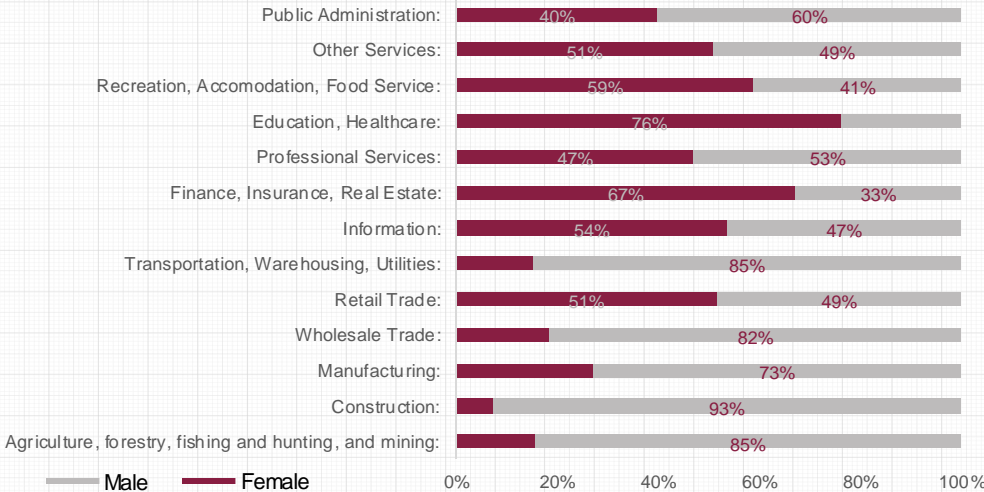
Distinct from national trends, Regional Labor Force Participation has remained largely stable. Additionally, both male and female unemployment is falling, with lower unemployment numbers recorded for women in the region for 2016.

**Labor Force Participation by Gender, 2010-2016**



## Women In Industry

**Industry by Gender, 2016**



The majority of regional sectors are predominately male, with five sectors employing less than 30% women. Only three sectors have considerable female representation, including; education and healthcare; finance, insurance, and real estate; and recreation, accommodation, and food service. When compared to national trends, some regional sectors show better gender representation. For instance, finance and real estate is predominately female in the region, and predominately male at the national level.

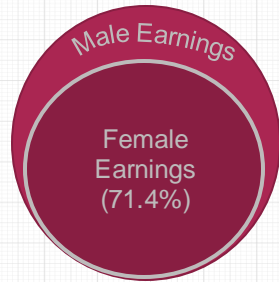


# Regional Overview

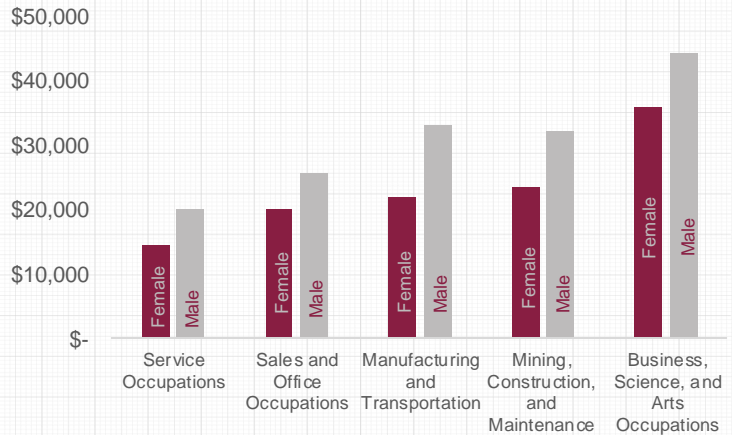
## Women and Wages

Women are Compensated 28.6% less than men in the region, on average. While this is largely on par with national earnings, there are large gaps in compensation for certain occupations in the region. For instance, women make 33% less than men for manufacturing and transportation positions and 27.3% less for mining, construction and maintenance positions.

**Women's Earnings as a Percent of Men's, 2016**

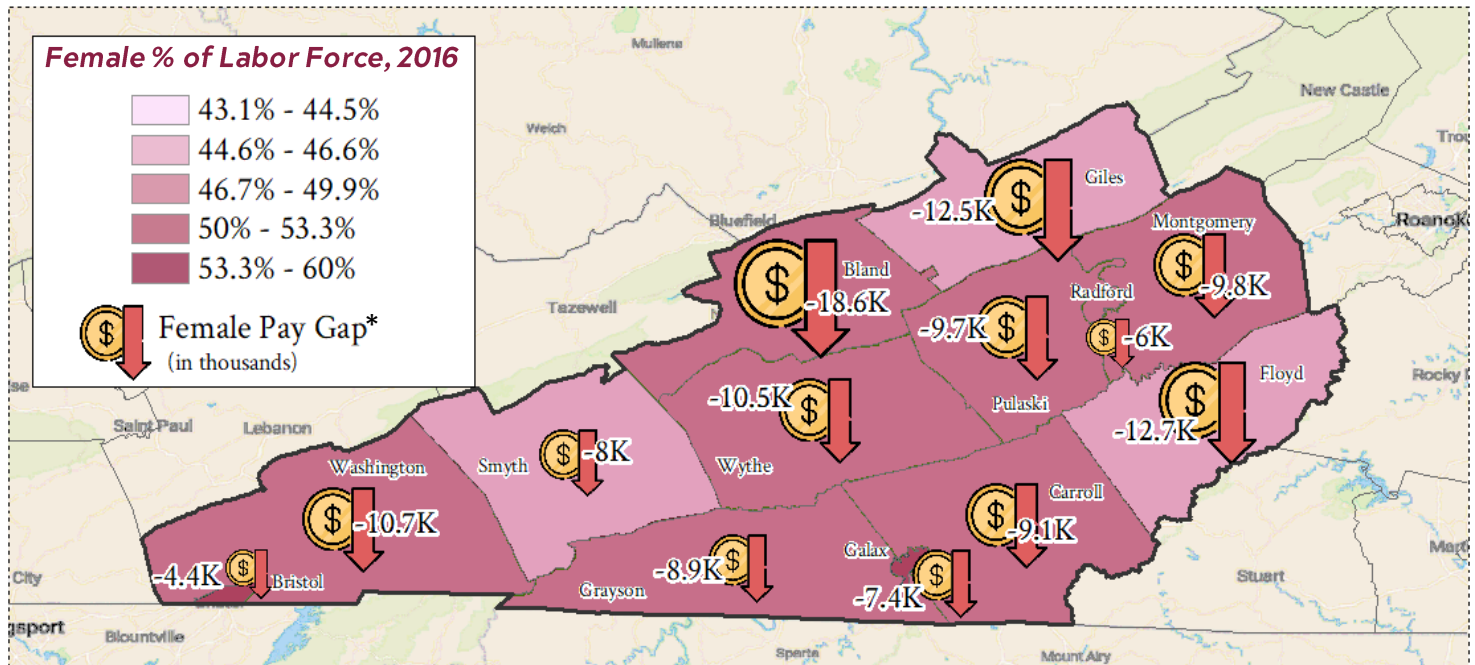


**Median Occupational Earnings by Gender, 2016**



## Female Representation in the Regional Labor Force

The following map shows female labor force representation and differences in compensation for men and women for the ten counties and three cities in the regional workforce area. Localities with lighter shades of maroon have a lower percentage of women in their labor force and localities with darker shades show a higher number of women in the labor force. In 2016, for example, Floyd, Smyth, and Giles County had the lowest percentage of females in their labor force, while Pulaski County and the Cities of Bristol, Galax, and Radford had the highest. The additional symbols on the map represent gender based waged gaps for each county in 2016. Wage differences vary tremendously throughout the region. For example, women in Bland County are compensated \$18,600 less than their male counterparts, while women in the City of Bristol are only compensated \$4,400 less.



\*Wage gaps were determined by subtracting median male occupational earnings by median female occupational earnings for 2016. The wage gap displayed on this map is the difference between male and female earnings, across all occupations. Sources: U.S. Census Bureau, American Community Survey, Tables S2401, S2403, S2411

Healthcare 

*Approximately 81% of workers in this industry are women.* Many healthcare occupations are high-paying, and predominately female. Higher paying healthcare occupations, however, typically require post-secondary education, such as programs related to nursing and radiology. Nevertheless, this growing sector accounts for several of the highest paying job opportunities for women.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Dental Hygienists	16	232	97%	3%	\$29.78
Nurse Practitioners	15	176	94%	15%	\$40.32
Licensed Practical & Vocational Nurses	96	1,109	93%	6%	\$17.47
Registered Nurses	129	2,124	93%	4%	\$25.82
Medical Records & Health Information Technicians	13	176	91%	9%	\$16.26
Therapists	40	638	81%	7%	\$33.87
Diagnostic Technicians	18	275	77%	5%	\$25.14

Education 

*Approximately 72% of workers in this industry are women.* Many occupations within the education sector are held by females and require a college education. The education and healthcare sector has the highest concentration of women in the region, employing over 19,000 women. Unlike many manufacturing and some IT positions, however, these occupations typically entail differing degrees of post-secondary education. For instance, a teacher might spend up to six years in a formal institution while a similarly paid production worker might pursue one year of technical training.

Occupation	Annual Openings	Total Workers (2018)	% Female Teachers	Projected Job Change (2018-2023)	Median Hourly Earnings
Special Education Teachers	36	492	90%	1%	\$24.85
Elementary School Teachers	112	1,452	87%	0%	\$22.29
Middle School Teachers	36	488	85%	1%	\$22.59
Instructional Coordinators	24	263	78%	1%	\$27.02
Counselors	38	348	77%	3%	\$24.29
Self-Enrichment Education (Non-Academic)	45	331	72%	11%	\$17.76
Administrators (High School or Below)	39	497	68%	1%	\$37.38
High School Teachers	70	978	67%	0%	\$22.88
Post-High School Teachers	319	4,007	53%	1%	\$29.15

## Manufacturing

*Approximately 36% of workers in this industry are women.* The vast majority of women in the regional manufacturing industry work in lower paying office and administrative support positions. Manufacturing occupations, especially welders, machinists, and other operations workers, play an important role in providing meaningful, family-wage supporting jobs. In the region, however, women account for less than 5% of employment for these higher paying, more technical positions.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Secretaries & Administrative Assistants	228	2,086	95%	0%	\$15.21
Bookkeeping & Accounting Clerks	184	1,609	89%	1%	\$15.90
Administrative Supervisors	152	1,400	67%	5%	\$20.45
Maintenance & Repair Workers	189	1,744	4%	5%	\$15.98
Tractor-Trailer Drivers	193	1,697	3%	1%	\$17.81
Machinery Mechanics	73	755	2%	3%	\$21.15
Construction Equipment Operating Engineers	60	514	2%	2%	\$16.97
Automotive Service Technicians & Mechanics	97	1,003	1%	0%	\$15.52

## Information Technology

*Approximately 29% of workers in this industry are women.* Female participation in the IT Sector is increasing. Traditionally, IT occupations have been disproportionately male and many still are. There is, however, a growing female component within this industry. Similar to manufacturing, however, many of the occupations with a high percentage of female employees typically pay lower than those with higher percentage of men.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Graphic Designers	22	201	60%	6%	\$17.48
Computer Systems Analysts	32	435	38%	2%	\$35.76
Web Developers	13	154	35%	6%	\$23.20
Computer Network Support Specialists	15	170	29%	6%	\$25.02
Computer User Support Specialists	52	586	29%	7%	\$22.08
Information Security Analysts	11	130	26%	6%	\$38.88
Computer Programmers	6	80	24%	5%	\$32.41
Network & Computer System Admins	22	317	21%	2%	\$32.29
Software Developers	64	711	22%	9%	\$39.74

## Manufacturing

Mary is the Manger of Operations at PBE Group, a manufacturer located in Tazewell, Virginia. Mary's role at PBE Group is incredibly varied- she oversees production, human resources, quality assurance, customer relations, and purchasing, as well as many smaller corporate functions. Mary has been with PBE group for 35 years, starting as a production employee. Mary's dedication and diligence was quickly noticed by company management, who continued to promote her within the firm. While Mary does not hold a bachelor's degree, her desire to learn and strong work ethic has placed her in engineering, financial, and other deeply technical roles.



She now serves as second in command at PBE group, reporting to the COO (chief operating officer) of the firm- who is also a woman. Mary stressed that encouraging leadership and teambuilding amongst her subordinates and fellow managers has greatly contributed to her success at PBE, mentioning that a team is only as strong as their weakest link. Unsurprisingly, Mary's management style is hands on- her favorite part of the job is working with her staff. Mary mentioned that her gender did not work against her when she joined the company in 1982. Company leadership at PBE has been traditionally female, and many of their manufacturing and production jobs are actually suited for women in that women are just as capable as men when it comes to technologically advanced positions. The caveat to these occupations, however, is the educational requirement. While Mary does not possess a bachelors degree, she acknowledges its important in future manufacturing jobs, especially in that manufacturing firms such as PBE are only hiring engineers. Encouraging young people to pursue STEM education is important to both Mary and PBE, both of whom participate in outreach programs targeted at middle-school aged children. Additionally, PBE offers factory tours for high-school and college students.

## Information Technology



After 12 years of experience as an IT specialist in Outreach Information Services at Virginia Tech, Lena finds "the people" as the most attractive part of her job. While technical skills are important for setting up new equipment and helping her fellow employees with tech-related issues, Lena mentioned that people skills are just as important. Prior to working in IT, Lena worked as a basketball coach. Lena's personal interest in computers attracted her to IT work when choosing a new career. Additionally, she saw an opportunity in IT after recognizing a lack of tech-savvy women in the job market and the relatively high pay for IT occupations. Lena mentioned that her job

search was not as difficult as one might think, especially in that many companies are trying to increase and encourage workplace diversity. Her experience in and outside of the workplace, however, has not been without its challenges. For instance, Lena mentioned that she struggles with underestimation, with some individuals assuming that she cannot do something due to her gender. Despite these small challenges, Lena highly recommends IT employment to female jobseekers, stating that "...they [women] can do whatever a man can do." Additionally, Lena cited industry growth, job security, and competitive pay as other reasons women should pursue employment in this field. Lena's advice for women seeking to enter this field is to "even out" their experience and education in order to become a well-rounded candidate and to move to a growing city to gain experience.

## Summary & Conclusion

*While women account for almost half of the labor force nationally and regionally, they are under-represented in many higher paying occupations in important industry sectors.* By analyzing national and regional trends, this report highlighted a number of inequalities and challenges women confront before and during their employment, namely:

- Women are more likely to be highly educated (57% of Bachelor's degree) and less likely to work in higher-level positions (e.g., 20% of C-suite roles).
- There are less women studying (35%) and working in (24%) stem related fields.
- Women are compensated up to 40% less than men, depending on the industry.
- Women are underrepresented in high paying industries and those women that do work in high paying industries tend to make the least.

## Regional Trends



### Manufacturing

*Approximately 36% of workers in this industry are women.*

- Women are predominately employed in low paying, office and administrative support occupations.
- Less than 5% of employment for higher paying, more technical manufacturing jobs is female.



### Healthcare

*Approximately 81% of workers in this industry are women.*

- Many healthcare occupations are predominately female and high paying.
- Nurse practitioners, therapists, and dental hygienists are among the highest paying occupations in the region, and are at least 80% female.



### Information Technology

*Approximately 29% of workers in this industry are women.*

- Female representation in this industry is growing, but is still somewhat low.
- Predominately male occupations are compensated at approximately twice that of predominately female occupations for this industry



### Education

*Approximately 72% of workers in this industry are women.*

- Educational occupations are also predominately female and relatively high paying.
- These occupations, however, offer less competitive wages and require higher educational attainment.

## Regional Trends

*There is no "one size fits all" solution to improving employment opportunities for women.* While there may be state and national-level policy actions that can help, there are also regional approaches that could be explored by the Workforce Board and other stakeholders:

- Developing industry-wide and company specific mentoring and sponsorship programs for women, including succession planning to encourage future gender equity and leadership development amongst female employees.
- Utilizing social media to highlight female workers and opportunities for women in key industries.
- Increasing the participation of girls in STEM-related training programs and internships in middle and high schools.
- Providing equitable and equal compensation and benefits for women and men.
- Encouraging employers to consider and offer childcare options, flexible scheduling, and creative options for female workers, especially those heading households. Options might include women heading households telecommuting, job sharing, and consulting assignments.



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**Albert Alwang**

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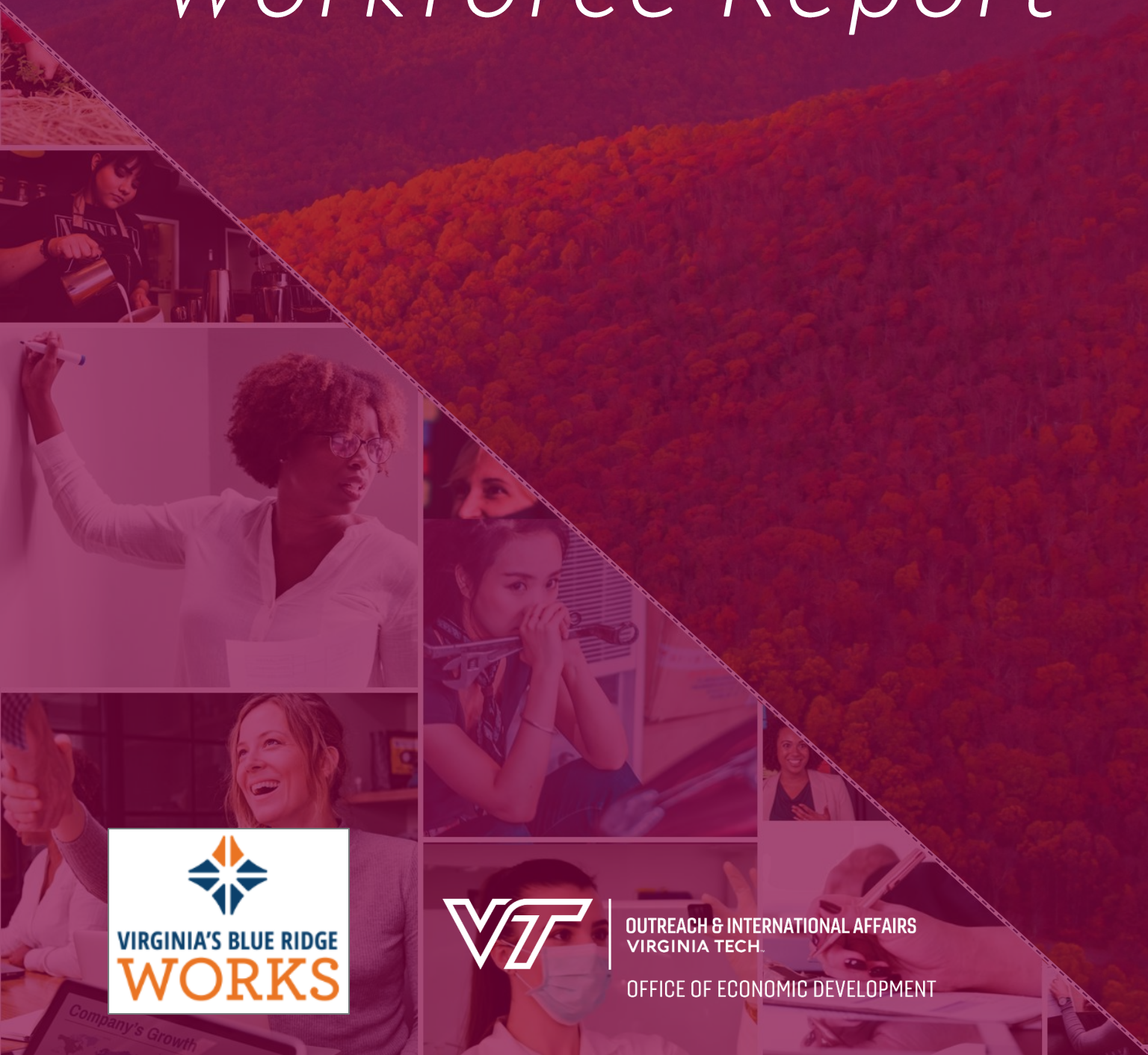
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2018 QUARTER 3

# Blue Ridge Works Workforce Report



OUTREACH & INTERNATIONAL AFFAIRS  
VIRGINIA TECH.

OFFICE OF ECONOMIC DEVELOPMENT



# Introduction

## 2018 Quarterly Workforce Report 3

*Welcome to the 2018 quarter three workforce report*, produced by the Virginia Tech Office of Economic Development for the Western Virginia Workforce Development Board. This document focuses on gender in the workplace at the national and regional level. National trends provide context for gender-based wage differences and the barriers women face throughout their time in the workforce. Regional trends illustrate how these differences affect Alleghany, Botetourt, Craig, Franklin, and Roanoke Counties as well as the cities of Roanoke, Salem, and Covington.

This report begins by outlining national trends related to gender-based workforce inequalities and details information on the role of gender in labor force participation, highlighting disparities between education attainment and career opportunities for men and women. The report continues this focus on page four, displaying data on female representation at all levels of the corporate ladder as well as information related to female representation and weekly wages for national sectors and female employment in science, technology, engineering, and mathematics (STEM) fields.

This quarter's data snapshot then focuses on regional trends, including information and data related to demographic changes, female labor force participation, and female representation in regional industry sectors. Page six offers an overview of occupations for both men and women. Additionally, a map illustrating female representation in the regional labor force and the gender wage gap is included on page six. The next two pages (seven and eight) include information and data related to female employment in Virginia target industries within the region as well as other industries important to the area economy.

Page nine includes brief summaries of interviews with women working in some of the region's target industries. These interview summaries offer personal experiences and perspectives from females in industries or occupations where women may be underrepresented. The report concludes with a brief summary.

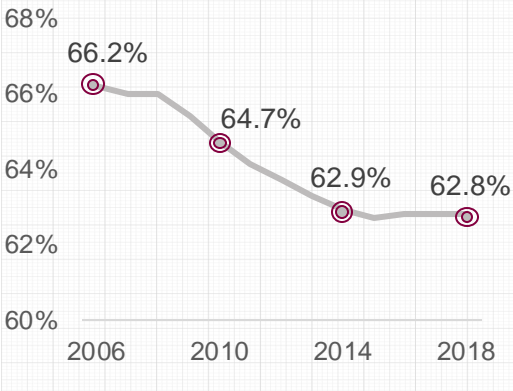




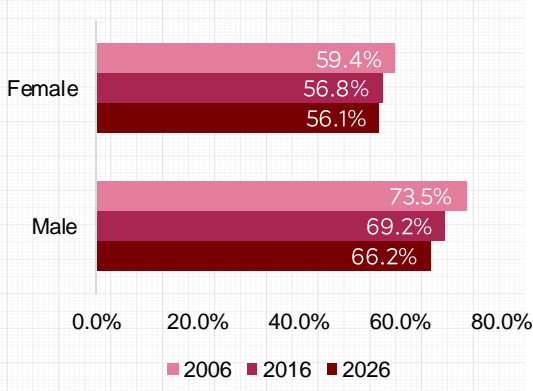
# National Trends

## Labor force participation

Participation Rate, March 2006-18



Participation Rate by Gender, 2006-26



National Labor force participation fell by 3.4% from 2006 to 2018. During this same period, men exited the labor force at a higher rate than women. For instance, female labor force participation has declined marginally in the past 10 years- falling by only 2.6%- while male labor force participation fell at a rate of 4.3%.

## Marital Status and Labor force Participation

Labor force participation also varies by marital status for women and men. For instance, divorced women participate in the labor force at a higher rate than their married counterparts. By contrast, married men were more likely to participate in the labor force than divorced men. Moreover, unmarried mothers are more likely to participate in the labor force than married mothers. In 2015, working wives contributed an

Labor Force Participation by Marital Status, 2016

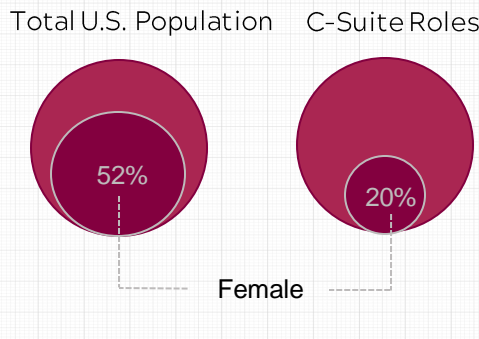
Married		Divorced	
Women	Men	Women	Men
57.9%	73.31%	62.5%	66%
Unmarried Mothers		Married Mothers	
75.9%		68.6%	

average of 37% to total family incomes. This figure has increased by 10% from 1970, possibly due to the proportion of wives earning more than their husbands. In 1987, for instance, 18 percent of working wives earned more than their working spouses; in 2015, 29 percent of wives earned more than their husbands. This trend aligns with the national decrease in wage gap during the past two decades.

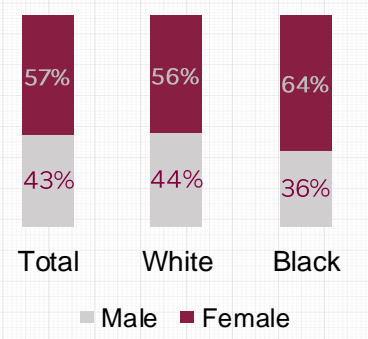
## Education and Careers

Women graduate more and are hired less. Women account for 57% of recent college graduates yet more men are hired to entry level positions. At every subsequent step of the career pipeline, female representation continues to decline. Moreover, women of color see far less representation at senior levels. Overall, one in five C-suite leaders are women, and fewer than one in thirty is a woman of color.

Female population vs. C-Suite Roles\*



Bachelor's Degree Awarded



\*C-Suite Roles are those at the top of the corporate ladder, including CTO, COO, CFO, CEO  
 Sources: Bureau of Labor Statistics (BLS)  
 National Center for Education Statistics (NCES)  
 McKinsey and Company. (2017). *women in the workplace* (pp. 1-34).

# National Trends

## Representation in the corporate pipeline by gender and race

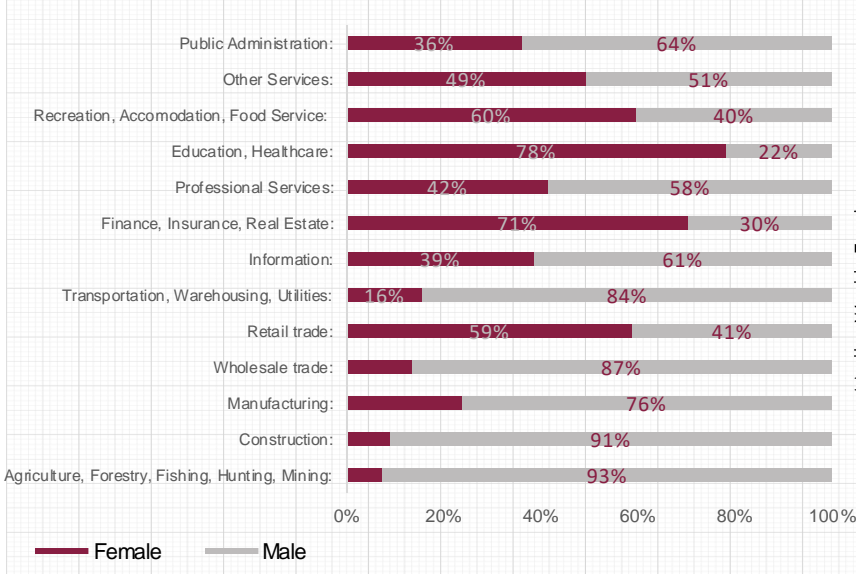
**Demographics of Corporate Positions, 2017**

	Entry Level	Manager	Director	VP	SVP	C-Suite
White Men	36%	47%	54%	61%	70%	67%
White Women	31%	26%	26%	23%	18%	18%
Men of Color	16%	16%	13%	11%	9%	12%
Women of Color	17%	11%	8%	6%	4%	3%

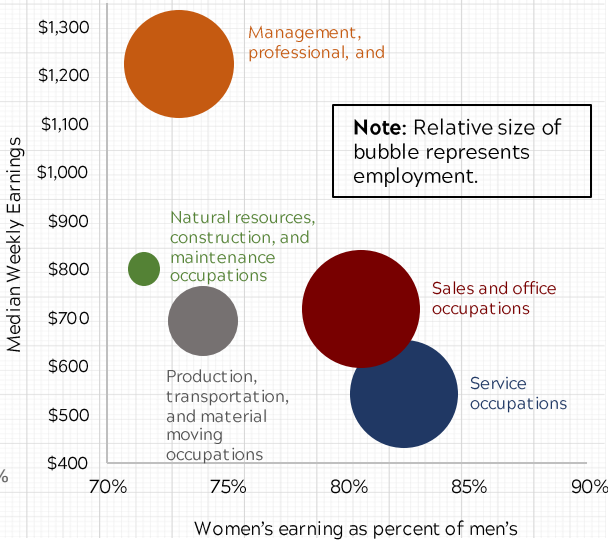
Women fall behind early and continue to lose ground with every step. Women are underrepresented at every level of the corporate pipeline, with female representation tapering at every level of the corporate ladder. Moreover, women of color see a fraction of the representation observed in their white counterparts. At every step of the corporate ladder, women of color see the least representation of all reported groups.

## Women's Earnings and Occupations

**Female Representation by Industry, 2016**

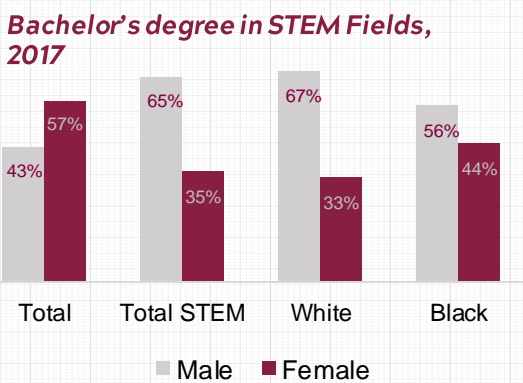


**Women's Employment and Median Weekly Wage by Industry, 2016**

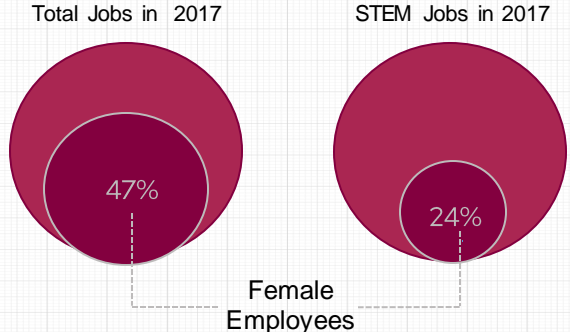


## Education and Employment in the STEM Fields

While women are more likely to earn bachelor's degrees, they are less likely to pursue degrees in STEM fields. Additionally, African American women are more likely to pursue STEM education than their white counterparts.



**Female Representation in STEM Fields, 2017**

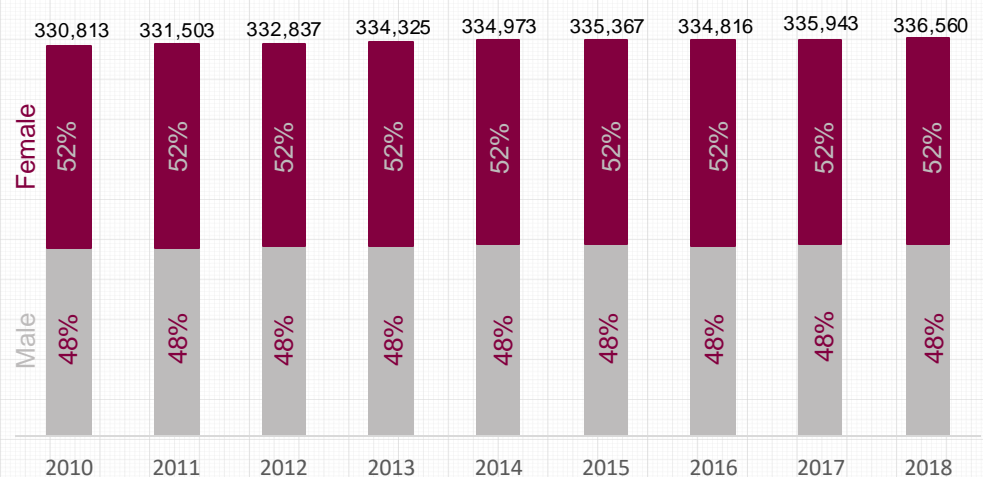


Sources: National Center for Education Statistics (NCES) McKinsey and Company. (2017). *women in the workplace* (pp. 1-34). <http://www.esa.doc.gov/sites/default/files/women-in-stem-2017-update.pdf>

# Regional Overview

## Demographic Trends

**Population Change, Overall and by Gender, 2010-2018**



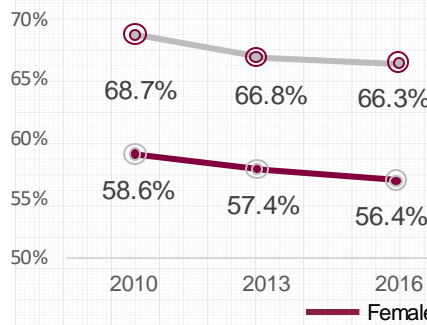
The regional population grew by 1.7% (an increase of 5,747 people) in the past 8 years, with male population growth outpacing female growth by 1,105 people. Despite disproportional growth in the male population, the female population currently outweighs the male population by 2%, or approximately 10,000 people.

## Women In the Labor Force

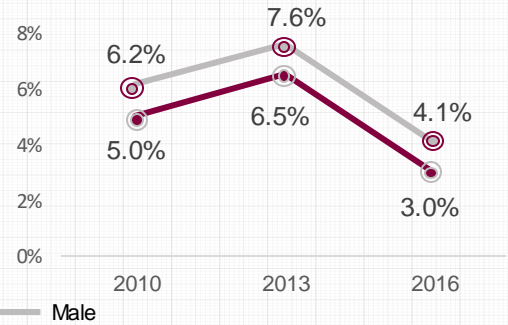
Similar to national trends, the regional labor force participation rate is falling for both women and men.

Additionally, both male and female unemployment is falling, with an over 2% reduction from 2010 to 2016.

**Labor Force Participation by Gender, 2010-2016**

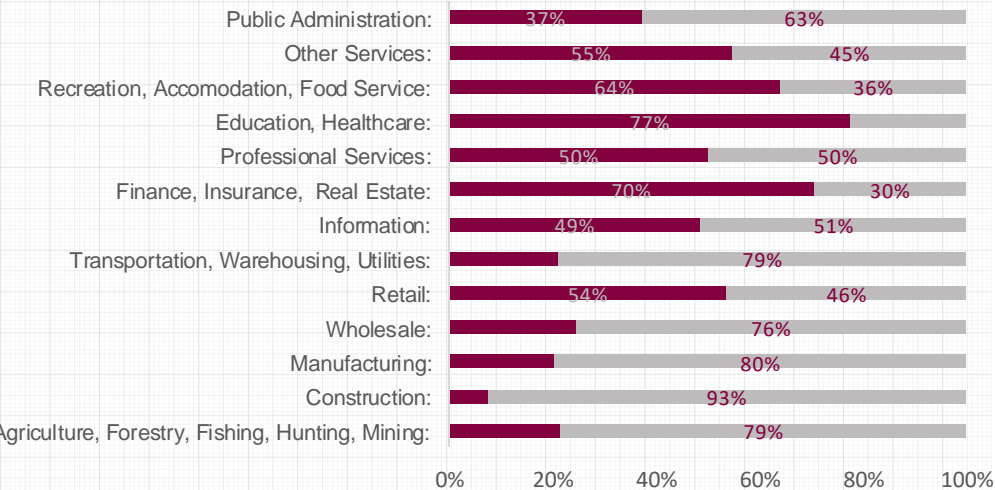


**Unemployment by Gender, 2010 to 2016**



## Women In Industry

**Industry by Gender, 2016**



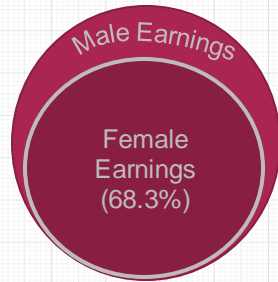
Half of the sectors in the region are predominately male, with five sectors employing less than 25% women. Only three sectors have considerable female representation, including; education and healthcare; finance, insurance, and real estate; and recreation, accommodation, and food service. When compared to national trends, some regional sectors show better gender representation. For instance, finance and real estate is predominately female in the region, and predominately male at the national level.

# Regional Overview

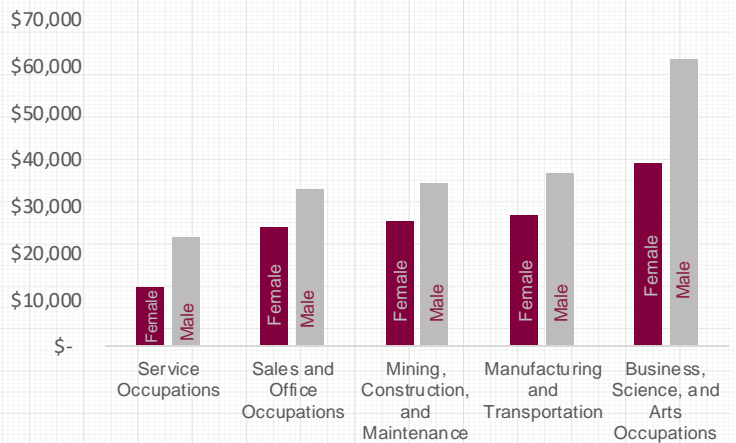
## Women and Wages

Women are compensated 31.7% less than men in the region, on average. While this is largely on par with national earnings, there are large gaps in compensation for certain occupations in the region. For instance, women make 45% less than their male counterparts in service related occupations and 35% less in business, science and arts occupations, on average.

**Women's Earnings as a Percent of Men's, 2016**

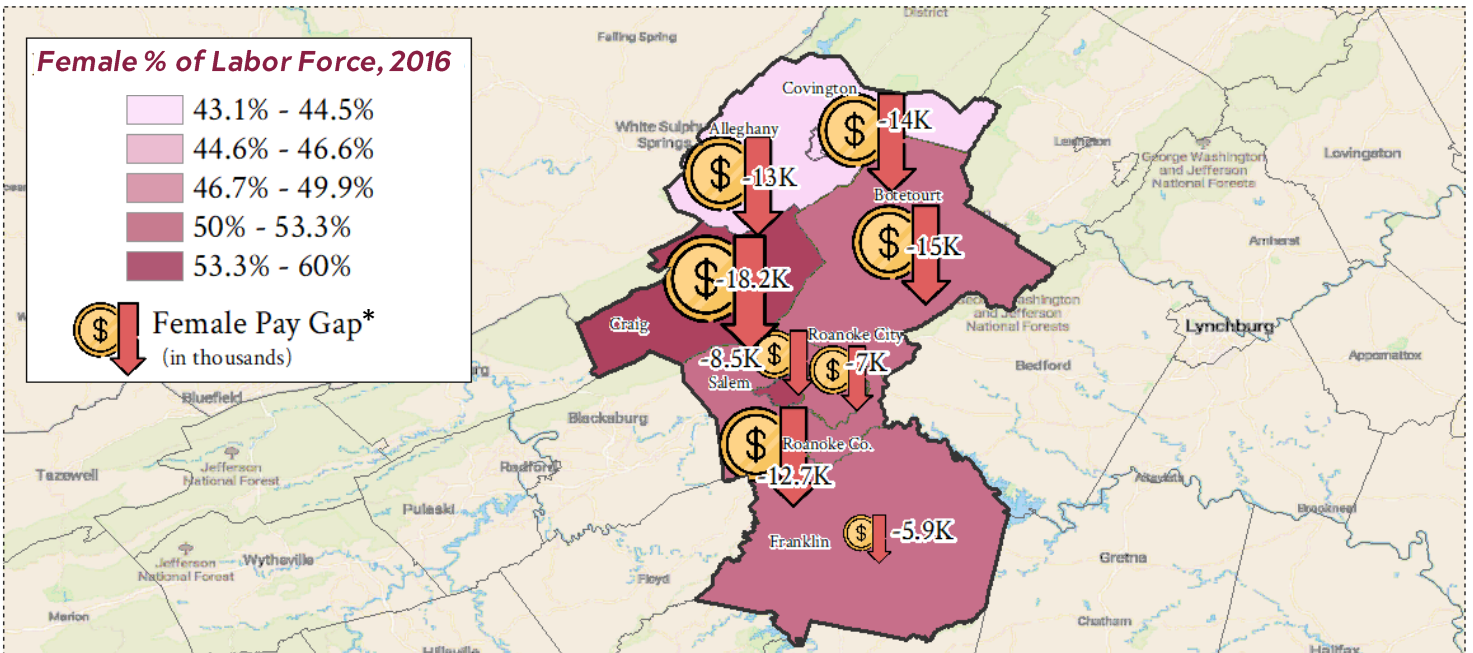


**Median Occupational Earnings by Gender, 2016**



## Female Representation in the Regional Labor Force

The following map shows female labor force representation and differences in compensation for men women for the five counties and three cities in the regional workforce area. Localities with lighter shades of maroon have a lower percentage of women in their labor force and localities with darker shades show a higher number of women in the labor force. In 2016, for example, the City of Covington and Alleghany County had the lowest percentage of women in the workforce while Craig County had the highest. The additional symbols on the map represent gender based waged gaps for each county in 2016. Wage differences vary tremendously throughout the region. For example, women working in Craig County are compensated \$18,000 less than their male counterparts, while in Franklin County, women are compensated only \$6,100 less.



\*Wage gaps were determined by subtracting median male occupational earnings by median female occupational earnings for 2016. The wage gap displayed on this map is the difference between male and female earnings, across all occupations. Sources: U.S. Census Bureau, American Community Survey, Tables S2401, S2403, S2411

Healthcare 

*Approximately 79% of workers in this industry are women.* Many healthcare occupations are high-paying, and predominately female. Higher paying healthcare occupations, however, typically require post-secondary education, such as programs related to nursing and radiology. Nevertheless, this growing sector accounts for several of the highest paying job opportunities for women.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Dental Hygienists	19	252	96%	7%	\$35.99
Licensed Practical & Vocational Nurses	104	1,281	91%	4%	\$20.71
Registered Nurses	348	4,622	90%	10%	\$29.86
Medical Records & Health Information Technicians	24	328	89%	5%	\$17.21
Therapists	76	1,047	78%	12%	\$36.06
Physical Therapist Assistants & Aides	42	285	76%	11%	\$27.31
Emergency Medical Technicians & Paramedics	32	377	38%	11%	\$17.02

Education 

*Approximately 78% of workers in this industry are women.* Many occupations within the education sector are held by females and require a college education. The education and healthcare sector has the highest concentration of women in the region. Unlike many manufacturing and some IT positions, however, these occupations typically entail differing degrees of post-secondary education. For instance, a teacher might spend up to six years in a formal institution while a similarly paid production worker might pursue one year of technical training.

Occupation	Annual Openings	Total Teachers (2018)	% Female Teachers	Projected Job Change (2018-2023)	Median Hourly Earnings
Special Education Teacher	36	459	89%	1%	\$24.86
Elementary School Teachers	136	1,636	84%	0%	\$23.42
Middle School Teachers	50	667	84%	0%	\$24.15
Counselors	32	278	77%	4%	\$23.52
Self-Enrichment Education (Non-Academic)	36	272	72%	10%	\$17.98
Career & Technical Education Teachers	9	128	70%	-1%	\$25.77
Administrators (High School or lower)	33	410	68%	1%	\$37.78
High School Teachers	84	1,152	65%	0%	\$24.38
Post-High School Teachers	74	855	52%	1%	\$27.00

## Manufacturing



*Approximately 35% of workers in this industry are women.* The vast majority of women in the regional manufacturing industry work in lower paying office and administrative support positions. Manufacturing occupations, especially welders, machinists, and other operations workers, play an important role in providing meaningful, family-wage supporting jobs. In the region, however, women account for less than 5% of employment for these higher paying, more technical positions.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Secretaries & Administrative Assistants	299	2,730	95%	-1%	\$15.04
Bookkeeping & Accounting Clerks	224	1,995	88%	-1%	\$17.02
Inspectors, Testers, Sorters, & Weighers	70	590	29%	-4%	\$17.20
Industrial Truck & Tractor Operators	114	973	7%	-1%	\$15.64
Welders, Cutters, Solderers	92	730	4%	8%	\$19.27
Tractor-Trailer Drivers	351	2,991	3%	4%	\$19.12
Maintenance & Repair Workers	170	1,609	3%	3%	\$17.49
Electricians	116	840	2%	9%	\$19.91
Auto Service Technicians & Mechanics	97	1,010	1%	1%	\$18.36

## Information Technology



*Approximately 33% of workers in this industry are women.* Female participation in the IT Sector is increasing. Traditionally, IT occupations have been disproportionately male and many still are. There is, however, a growing female component within this industry. Similar to manufacturing, however, many of the occupations with a high percentage of female employees typically pay lower than those with higher percentage of men.

Occupation	Annual Openings	Total Workers (2018)	% Female Workers	Projected Job Change (2018-2023)	Median Hourly Earnings
Graphic Designers	19	182	59%	2%	\$17.11
Computer User Support Specialists	43	476	34%	8%	\$22.80
Computer Network Support Specialists	15	195	32%	2%	\$23.21
Computer Programmers	12	184	30%	-2%	\$42.54
Software Developers	52	528	30%	14%	\$42.42
Computer Systems Admin.	25	368	24%	1%	\$33.59
Computer Network Architects	10	146	20%	1%	\$42.53

## Manufacturing

Mary is the Manger of Operations at PBE Group, a manufacturer located in Tazewell, Virginia. Mary's role at PBE Group is incredibly varied- she oversees production, human resources, quality assurance, customer relations, and purchasing, as well as many smaller corporate functions. Mary has been with PBE group for 35 years, starting as a production employee. Mary's dedication and diligence was quickly noticed by company management, who continued to promote her within the firm. While Mary does not hold a bachelor's degree, her desire to learn and strong work ethic has placed her in engineering, financial, and other deeply technical roles.



She now serves as second in command at PBE group, reporting to the COO (chief operating officer) of the firm- who is also a woman. Mary stressed that encouraging leadership and teambuilding amongst her subordinates and fellow managers has greatly contributed to her success at PBE, mentioning that a team is only as strong as their weakest link. Unsurprisingly, Mary's management style is hands on- her favorite part of the job is working with her staff. Mary mentioned that her gender did not work against her when she joined the company in 1982. Company leadership at PBE has been traditionally female, and many of their manufacturing and production jobs are actually suited for women in that women are just as capable as men when it comes to technologically advanced positions. The caveat to these occupations, however, is the educational requirement. While Mary does not possess a bachelors degree, she acknowledges its important in future manufacturing jobs, especially in that manufacturing firms such as PBE are only hiring engineers. Encouraging young people to pursue STEM education is important to both Mary and PBE, both of whom participate in outreach programs targeted at middle-school aged children. Additionally, PBE offers factory tours for high-school and college students.

## Information Technology



After 12 years of experience as an IT specialist in Outreach Information Services at Virginia Tech, Lena finds "the people" as the most attractive part of her job. While technical skills are important for setting up new equipment and helping her fellow employees with tech-related issues, Lena mentioned that people skills are just as important. Prior to working in IT, Lena worked as a basketball coach. Lena's personal interest in computers attracted her to IT work when choosing a new career. Additionally, she saw an opportunity in IT after recognizing a lack of tech-savvy women in the job market and the relatively high pay for IT occupations. Lena mentioned that her job

search was not as difficult as one might think, especially in that many companies are trying to increase and encourage workplace diversity. Her experience in and outside of the workplace, however, has not been without its challenges. For instance, Lena mentioned that she struggles with underestimation, with some individuals assuming that she cannot do something due to her gender. Despite these small challenges, Lena highly recommends IT employment to female jobseekers, stating that "...they [women] can do whatever a man can do." Additionally, Lena cited industry growth, job security, and competitive pay as other reasons women should pursue employment in this field. Lena's advice for women seeking to enter this field is to "even out" their experience and education in order to become a well-rounded candidate and to move to a growing city to gain experience.

## Summary & Conclusion

While women account for almost half of the labor force nationally and regionally, they are under-represented in many higher paying occupations in important industry sectors. By analyzing national and regional trends, this report highlighted a number of inequalities and challenges women confront before and during their employment, namely:

- Women are more likely to be highly educated (57% of Bachelor's degree) and less likely to work in higher-level positions (e.g., 20% of C-suite roles).
- There are less women studying (35%) and working in (24%) stem related fields.
- Women are compensated up to 40% less than men, depending on the industry.
- Women are underrepresented in high paying industries and those women that do work in high paying industries tend to make the least.

## Regional Trends



### Manufacturing

Approximately 35% of workers in this industry are women.

- Women are predominately employed in low paying, office and administrative support occupations.
- Less than 5% of employment in more technical, higher paying positions is female.



### Healthcare

Approximately 79% of workers in this industry are women.

- Many healthcare occupations are predominately female and high paying.
- Therapists, dental hygienists and registered nurses are among the highest paying occupations in the region, and are at least 78% female.



### Information Technology

Approximately 33% of workers in this industry are women.

- Female representation in this industry is growing, but is still somewhat low.
- Predominately male occupations are compensated at approximately twice that of predominately female occupations for this industry

### Education

Approximately 78% of workers in this industry are women.

- Educational occupations are also predominately female and relatively high paying.
- These occupations, however, offer less competitive wages and require higher educational attainment.

## Regional Trends

There is no "one size fits all" solution to improving employment opportunities for women. While there may be state and national-level policy actions that can help, there are also regional approaches that could be explored by the Workforce Board and other stakeholders:

- Developing industry-wide and company specific mentoring and sponsorship programs for women, including succession planning to encourage future gender equity and leadership development amongst female employees.
- Utilizing social media to highlight female workers and opportunities for women in key industries.
- Increasing the participation of girls in STEM-related training programs and internships in middle and high schools.
- Providing equitable and equal compensation and benefits for women and men.
- Encouraging employers to consider and offer childcare options, flexible scheduling, and creative options for female workers, especially those heading households. Options might include women heading households telecommuting, job sharing, and consulting assignments.





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